



BSI Standards Publication

Thermal insulation products for building equipment and industrial installations — In- situ thermal insulation formed from expanded perlite (EP) products

Part 2: Specification for the installed
products

National foreword

This British Standard is the UK implementation of EN 15599-2:2010.

The UK participation in its preparation was entrusted to Technical Committee PRI/72, Rigid cellular materials.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ISBN 978 0 580 68708 2

ICS 91.100.60

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2010.

Amendments issued since publication

Date	Text affected
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EUROPEAN STANDARD

EN 15599-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2010

ICS 91.100.60

English Version

Thermal insulation products for building equipment and industrial installations - In-situ thermal insulation formed from expanded perlite (EP) products - Part 2: Specification for the installed products

Produits isolants thermiques pour l'isolation du bâtiment et les installations industrielles - Isolation thermique formée en place à base de granulats légers de perlite expansée (EP) - Partie 2: Spécification de produits mis en place

Wärmedämmstoffe für die Haustechnik und für betriebstechnische Anlagen - An der Verwendungsstelle hergestellte Wärmedämmung mit Produkten aus expandiertem Perlit (EP) - Teil 2: Spezifikation für die eingebauten Produkte

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Foreword

This document (EN 15599-2:2010) has been prepared by Technical Committee CEN/TC 88 "Thermal insulating materials and products", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This European Standard consists of two parts which form a package. The first part, which is the harmonised part satisfying the mandate, the CPD and is the basis for the CE marking, covers the products, which are placed on the market. The second part, which is the non-harmonised part, covers the specification for the installed products.

Attention is drawn to the need to take into account any complementary member state rules (e.g. installation rules) which together with this European Standard ensures the fitness for purpose of the installed product.

This European Standard is one of a series for polyurethane/polyisocyanurate, expanded perlite and exfoliated vermiculite in-situ formed insulation products used in building equipment and industrial installations, but this standard may be used in other areas where appropriate. EN 14316-1 covers the use of expanded perlite in buildings.

The reduction in energy used and emissions produced during the installed life of insulation products exceeds by far the energy used and emissions made during the production and disposal processes.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies the requirement for expanded perlite products which are used for in-situ thermal insulation of building equipment and industrial installations with an operating temperature in the range of approximately $-270\text{ }^{\circ}\text{C}$ to $+650\text{ }^{\circ}\text{C}$.

This European Standard specifies the requirements for the four types of expanded perlite products, Perlite Aggregate (EPA), Coated Perlite (EPC), Hydrophobic Perlite (EPH) and Premixed Perlite (EPM), containing less than 1 % by mass organic material as determined by Annex C in EN 15599-1:2010.

This European Standard is a specification for the installed products.

This European Standard also specifies the checks and test procedures to be used for the declaration made by the installer of the product.

This European Standard does not specify the required level of all properties to be achieved by a product to demonstrate fitness for purpose in a particular application. The required levels are to be found in regulations or non-conflicting standards.

This European Standard does not include factory made insulation products of formed shapes and boards made with expanded perlite.

The products covered by this European Standard are not intended to be used primarily for airborne sound insulation or sound absorption applications although they may improve the performance of the installation in these respects when installed for their primary insulation intended use.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 823:1994, *Thermal insulating products for building applications — Determination of thickness*

EN 15599-1, *Thermal insulation products for building equipment and industrial installations - In-situ thermal insulation formed from expanded perlite (EP) products - Part 1: Specification for bonded and loose-fill products before installation*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Definitions

3.1.1

expanded perlite

lightweight granular (insulation) material manufactured from naturally occurring volcanic rock expanded by heat to form a cellular structure

[EN ISO 9229]

3.1.2

loose fill insulation

in-situ insulation formed by pouring the granular material into the void or cavity, without the use of a bonding material

3.1.3

bonded insulation

in-situ insulation formed by bonding the expanded perlite to itself, or to itself and a surface

3.1.4

specifier

person responsible for the amount and thickness of the insulation and the type of product to be used in a particular installation

3.1.5

installer

person, company or organization which is responsible for the process of installing the insulation product

3.2 Symbols and abbreviations

3.2.1 Symbols used in this part of the standard

d is the required thickness of the product	m
λ_D is the declared thermal conductivity	W/(m·K)
R_s is the specified thermal resistance	m ² ·K/W

3.2.2 Abbreviations used in this part of the standard

EP is expanded perlite as defined in 3.1.1.

4 Requirements

4.1 General

The installer shall use an insulation product that complies with EN 15599-1.

The installer shall inspect the proposed installation, in order to determine whether it is suitable for application of the product.

4.2 Thermal resistance

The required thermal resistance is obtained using the specified thickness of expanded perlite. The thickness shall be calculated by the specifier before installation starts, according to the formula $d = R_s \lambda_D$. The required thickness shall be compared with the design specification to confirm the suitability of this product.

4.3 Installed declared insulation thickness

The mean value of the installed declared thickness shall not be less than the thickness calculated in accordance with 4.2. No individual value shall be less than 80 % of the specified value.

4.4 Cavity fill

The cavity shall be filled as specified by the specifier.

5 In-situ measurements

5.1 Installed declared insulation thickness

The installed declared insulation thickness of the insulation layer shall be measured by the installer.

The method of verification will vary depending on the application. Verification shall include reference to guides or level marks placed before installation and direct measurement after installation using a calibrated depth gauge. At least five insulation thickness measurements in different places shall be made for each 100 m² insulation area. In case of dispute the installed insulation thickness shall be measured in accordance with EN 823:1994, Annex A, pin and plate method.

5.2 Width of cavities

The width of a cavity shall be determined by reference to design drawings or use of a suitable test. This determination will normally be carried out by the specifier, before installation starts.

5.3 Cavity fill

For insulation applied in a cavity, the installer shall check to ensure that the cavity is filled as specified.

6 Installer's declaration

The installer (in conjunction with the specifier) shall declare to the customer that the work has been carried out in accordance with the requirements of this standard using an insulation product that complies with EN 15599-1.

The installer shall state at least the following information:

- trade name and designation code of the installed product;
- declared thermal resistance;
- required thermal resistance;
- required thickness;
- installed declared thickness;
- volume of insulation material used;
- date of installation.

The installer shall also declare that the work has been carried out according to the specified procedure.

Bibliography

- [1] EN 14316-1 *Thermal insulation products for buildings — In-situ thermal insulation formed from expanded perlite (EP) products — Part 1: Specification for bonded and loose-fill products before installation*
- [2] EN ISO 9229, *Thermal insulation — Vocabulary (ISO 9229:2007)*

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